ELMSTEAD ENERGY ASSESSMENTS AND BUILDING SERVICES

139-147 Camden Road, Camden

London, NW1 9HJ

Energy and Sustainability Statement

Elmstead Energy Assessments & Building Services
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Document Issue Record

This document has been revised and issued as below:

Issue	Date	Comments
1	22.09.2022	Original

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1.0 Executive Summary

EEABS (Elmstead Energy Assessments & Building Services) were instructed to produce an Energy and Sustainability Statement for the proposed development of six new flats at 139-147 Camden Road, Camden, London NW1 9HJ.

This energy and Sustainability statement can be used as a supporting document to the planning application to demonstrate that the overall energy and Sustainability strategy of the proposed development will meet the requirements set out by Building Regulations and local Camden Planning Policy.

Relevant Planning Policies

From inspection of the relevant policies for the proposed development we consider that the following targets needs to be met in order to comply with Part L Building Regulations and local Camden Planning Polices.

- As it is not a major development, the new flats should only have to achieve a pass under the latest Part L 2021 Building Regulations requirement to meet the Camden requirement of at least a 19% CO2 emissions reduction in comparison to Part L 2013 standards.
- The development will also consider other areas of sustainability within its design such as overheating, flood risk, waste, air quality, and materials to provide a low energy and sustainable design overall.

Assessment Methodology

To calculate the estimated carbon emissions of the development we have used Design SAP 10.2 software which is approved by Building Regulations. The baseline Target Emission Rate (TER) is calculated in accordance with Appendix R from the SAP 10.2 methodology.

The appraisals within this strategy are based on the Building Regulations Part L (2021) calculation methodology and should not be understood as a predictive assessment of likely future energy requirements or otherwise.

Carbon Emission Results

Savings have been made in the proposed design by following the Be Lean, Be Clean, Be Green Energy Hierarchy of the London Plan.

The results show that under the proposed design the total carbon emissions would be 4.50 tonnes CO2, compared to 5.13 tonnes CO2 for the Baseline. This would be an overall improvement of 12.28% over the Part L 2021 Standard. As the Part L 2021 standard is already an approximate 30% improvement over the 2013 Part L regulations, the Camden planning requirement of at least a 19% reduction in comparison to the 2013 Part L standard would be comfortably satisfied.

The SAP Calculation sheets for the proposed flats can be found within Appendix A.

Sustainability Measures

In collaboration with the Energy Assessment of the development, an analysis of the overheating within the flats has also been carried out following the cooling hierarchy of the London Plan.

By following the overheating/cooling strategy the risk of internal overheating to the flats would be minimised. Once through planning, at later design stages when the specification of the flats is more detailed a full CIBSE TM59 Part O overheating assessment can be carried out to show compliance with Part O Building Regulations.

Any demolition will be recycled where possible. A demolition audit will be carried out before any works progress on site to identify which materials can be recycled. The development will also consider the concept of the waste hierarchy in both the demolition of any structures and when constructing the proposed flats.

The building, wherever possible, will use BRE Green Guide 'A' rated materials and manufacturers will be chosen that can demonstrate their products are sustainably sourced and manufactured.

The water usage for the flats will not exceed a maximum of 110 litres/person/day (including 5 litres for external water use) as required by the Camden Local Plan. Calculations to prove how this can be achieved can be found within this report. These calculations will be updated at later design stages once specific sanitaryware has been selected.

The extent of possible flooding on the site has also been analysed using data from the government flood warning information service. The flood map shows that the proposed development site is within an area of very low risk from flooding from rivers or sea.

The surface water flood map service states that the proposed site sits within an area of risk from surface water flooding. The final drainage (SuDS) design should ensure that run off rates achieve greenfield standards (if feasible).

The proposed development will not adversely impact upon the air quality of the location. The proposed gas boilers used within the flats will be low output, thanks to the high levels of insulation, they will also be specified to be low NOx emission boilers only.

Conclusion

This energy and sustainability statement has shown that the proposed development of six new flats at 139-147 Camden Road, Camden, London NW1 9HJ would satisfy the energy and sustainability requirements of Building Regulations and Local Camden Planning Policies.

2.0 Introduction

EEABS (Elmstead Energy Assessments & Building Services) were instructed to produce an Energy and Sustainability Statement for the proposed development of six new flats at 139-147 Camden Road, Camden, London NW1 9HJ.

This energy and Sustainability statement can be used as a supporting document to the planning application to demonstrate that the overall energy and Sustainability strategy of the proposed development will meet the requirements set out by Building Regulations and Camden Local Planning Policy.

2.1 Planning Policy Context

Numerous policies that relate to the energy efficiency and carbon emissions of the development have been considered in preparation of this energy assessment.

2.1.1 National Planning Policy Framework

The National Planning Policy Framework encourages local planning authorities to adopt proactive strategies to mitigate and adapt to climate change.

They should plan for new development in ways which reduce greenhouse gas emissions; actively support energy efficiency improvements to existing buildings; and set local sustainability requirements which are consistent with the government's policies and standards.

2.1.2 Building Regulations Part L 2021

The assessment of the development against policy targets has been carried out using the very latest Part L 2021 benchmarks. The Part L 2021 targets represent approximately a 30% reduction in carbon emissions in comparison to the Part L 2013 target.

Part L 2021 is mandatory and requires that a dwelling does not exceed the CO2 emission rate of that set by a Target Emission Rate (TER) calculated in accordance with Appendix R from the SAP 10.2 methodology.

It also requires that a dwelling does not exceed the Target Fabric Energy Efficiency (TFEE) and Target Primary Energy Rate (TPER).

2.1.3 The London Plan

The latest London Plan guidance on the preparation of Energy Assessments is from June 2022 and has been used to structure this energy statement.

As this development is not more than 10 units it is not considered as a major development and therefore the requirements of the London Plan should not strictly apply, however the guidance will still be followed, and every effort will be made to ensure the most energy efficient and carbon minimal design possible.

Policy SI 2 of the London Plan requires development proposals to make the fullest contribution to minimising carbon dioxide emissions through on site methods in accordance with the following energy hierarchy:

- Be lean: use less energy
- Be clean: supply energy efficiently
- Be green: use renewable energy

2.1.4 London Borough of Camden

The Camden Local Plan (2017) Policy CC1 Climate Change Mitigation states that all developments should minimise the effects of climate change and encourage developments to meet the highest feasible environmental standards that are financially viable.

Developments should reduce their carbon dioxide emissions through following the steps in the energy hierarchy and major developments should demonstrate that the London Plan targets have been achieved.

As this development is not a major development (only six new build units) it is not considered as a major development under the London Plan, however section 8.8 of the Camden Local Plan does state that new residential developments should demonstrate at least a 19% reduction in CO2 emissions below Part L 2013 Building Regulations.

As the new Part L 2021 Building Regulations standard is an approximate 30% improvement over the Part L 2013 target, the Camden requirement will be met just by showing compliance with the latest Part L 2021 regulations.

The development will also consider other areas of sustainability within its design such as overheating, flood risk, water usage, waste, air quality, and materials to provide a low energy and sustainable design overall.

3.0 Assessment Methodology

The following methodology has been used to calculate the CO2 emissions for the development.

3.1 SAP 10.2

To calculate the estimated carbon emissions of the development we have used Design SAP 10.2 software which is approved by Building Regulations. The baseline Target Emission Rate (TER) is calculated in accordance with Appendix R from the SAP 10.2 methodology.

3.2 Limitations

The appraisals within this strategy are based on the Building Regulations Part L (2021) calculation methodology and should not be understood as a predictive assessment of likely future energy requirements or otherwise.

Occupants may operate their systems differently, and/or the weather may be different from the assumptions made by Part L approved calculation methods, leading to differing energy requirements once the development is in operation.

4.0 Energy Assessment

The following sections describe how the baseline and proposed developments Carbon Emissions have been calculated.

4.1 Baseline Target

The baseline Target Emission Rate (TER) is calculated in accordance with Appendix R from the SAP 10.2 methodology. This Baseline CO2 emission rate is then used as the basis for the target CO2 reductions required throughout the Energy Hierarchy.

Table 1 - Baseline Carbon Emission Results

Unit	Area (m2)	CO2 Emission Rate (kgCO2/m2)	Total CO2 Emissions (Tonnes of CO2)
Flat 1	49	18.32	0.90
Flat 2	36	18.85	0.68
Flat 3	50	16.18	0.81
Flat 4	36	18.85	0.68
Flat 5	50	16.18	0.81
Flat 6	82	15.29	1.25
		Total	5.13

The results show that the total Target CO2 emissions for the development is estimated to be 5.13 Tonnes of CO2 per annum.

4.2 Proposed Design - Following the Energy Hierarchy

4.2.1 Be Lean

The Be Lean stage of the energy hierarchy focuses on passive design measures which are those which reduce the initial energy demand of the building through passive means, for example wall insulation once installed requires no other means of operation and its performance is also unlikely to deteriorate.

Where possible the development has taken a fabric first approach to reducing the initial energy demand by the following methods:

Glazing Performance

Windows and glazed doors are be highly efficient glazing and will have a low U-value of 1.2 W/m^2.K, helping to reduce the amount of heat loss through the glazing.

Thermal Envelope

The inclusion of high levels of thermal insulation not only helps to reduce the buildings overall energy demand and therefore carbon emissions, but it also plays a vital role in securing the occupant's thermal comfort.

It also helps to reduce the buildings peak heating load required meaning that smaller plant equipment can be sized, helping to further improve not only carbon emissions but also the cost of the development.

The proposed walls, floor, and roofs will provide significant savings over the Part L1 limiting fabric parameters.

Thermal Bridging

Thermal bridges are junctions between parts of the build through which heat can escape, for example the junction where a roof and wall construction meet. To reduce heat loss through these areas we have assumed that LABC thermal bridging details will be followed. (Individual Psi values assumed for each of the junctions can be found within the SAP calculation sheets within the appendices.)

Air Permeability

The air permeability of the development is a measure of how much volume of air can penetrate through its fabric. Therefore, a well built, highly sealed building would result in less unwanted heat loss, and therefore provide a more efficient building.

Part L 2021 Building Regulations have a maximum limit of 8 $m^3/h.m^2$ that must be achieved, the proposed development will target a value of 3.0 $m^3/h.m^2$.

Summary of Passive Design Measures

The table below shows a summary of the passive design measures included for within the development and how they compare against the Part L1 requirements.

Table 2 - Summary Table of Passive Design Measures

Parameter	Part L Limiting Values	Development Proposal	% Improvement
U-Values			
Walls	0.26 W/m^2.K	0.18 W/m^2.K	31%
Floors	0.18 W/m^2.K	0.13 W/m^2.K	28%
Roofs	0.16 W/m^2.K	0.11 W/m^2.K	31%
Glazing	1.6 W/m^2.K	1.20 W/m^2.K	25%
Air Permeability	8 m^3/h.m^2	3.0 m^3/h.m^2	63%

The summary of passive measures shows that the proposed development will be a considerable improvement over the Part L1 limiting fabric parameters.

4.2.2 Be Clean

The Be Clean Stage of the Energy Hierarchy focuses on energy efficiency measures which are those which seek to supply the remaining demand for energy, after the initial demand has been lowered through passive means, in the most efficient way.

The following energy efficiency measures have been incorporated within the proposed development:

Heating and Hot Water

The heating and hot water is assumed to be provided by a gas-fired combi boiler system with an assumed efficiency of 89.2%.

Lighting

The lighting for the development will consist of low energy LED lighting throughout with a minimum light source efficacy of at least 80 lm/W.

Ventilation

The ventilation is assumed to be natural through the use of opening windows, this reduces energy costs and carbon emissions associated with whole house mechanical ventilation systems. Wet rooms and kitchen areas will have local intermittent mechanical extract ventilation.

4.2.3 Be Green

The Be Green stage of the energy hierarchy focuses on on-site low and zero carbon renewable technologies.

Solar PV Panels

We have assumed that each flat will have a 0.68 kWp (2No. 340 Watt panels) solar PV system installed on the roof. This will mean that at least 12No. solar PV panels will be installed on the roof of the development.

4.2.4 Proposed Design Results

The results below show total carbon emissions in kgCO2/m2 and tonnes CO2 for the proposed design following the energy hierarchy as previously described.

Table 3 - Proposed Design Carbon Emission Results

Unit	Area (m2)	CO2 Emission Rate (kgCO2/m2)	Total CO2 Emissions (Tonnes of CO2)
Flat 1	49	16.05	0.79
Flat 2	36	15.52	0.56
Flat 3	50	14.47	0.72
Flat 4	36	15.52	0.56
Flat 5	50	14.47	0.72
Flat 6	82	14.04	1.15
		Total	4.50

The results show that under the proposed design the total carbon emissions would be 4.50 tonnes CO2, compared to 5.13 tonnes CO2 for the Baseline. This would be an overall improvement of 12.28% over the Part L 2021 Standard. As the Part L 2021 standard is already an approximate 30% improvement over the 2013 Part L regulations, the Camden planning requirement of at least a 19% reduction in comparison to the 2013 Part L standard would be comfortably satisfied.

The SAP Calculation sheets for the proposed flats can be found within Appendix A.

5.0 Sustainability

5.1 Overheating/Climate Change Adaptability

In collaboration with the Energy Assessment of the development, an analysis of the overheating within the flats has also been carried out.

1. Minimise Internal Heat Gains

To minimise internal heat gains low energy lighting will be used throughout the development. Any new heating pipework will also be well insulated, white goods and computer equipment should also be of the highest efficiency.

2. Reduce the Amount of Heat Entering the Building

Highly efficient windows will reduce the amount of solar gain entering the flats.

3. Use of Thermal Mass and High Ceilings to Manage Heat within the Building

The building will have a medium thermal mass and it will be well insulated with an improved air permeability value to stop heat from first entering the building.

4. Passive Ventilation

Windows will be openable to allow for fresh air when required.

5. Mechanical Ventilation

A whole house Mechanical supply and extract ventilation system has not been proposed at this stage in order to keep energy consumption to as low as possible. One could be considered further into the detailed design stage if required.

By following the above overheating/cooling strategy the risk of internal overheating to the flats would be minimised. Once through planning, at later design stages when the specification of the flats is more detailed, a full CIBSE TM59 Part O overheating assessment can be carried out to show compliance with Part O Building Regulations.

5.2 Land Use and Waste

Any demolition will be recycled where possible. A demolition audit will be carried out before any works progress on site to identify which materials can be recycled.

The development will also consider the concept of the waste hierarchy shown below in both the demolition of any structures and when constructing the proposed flats.

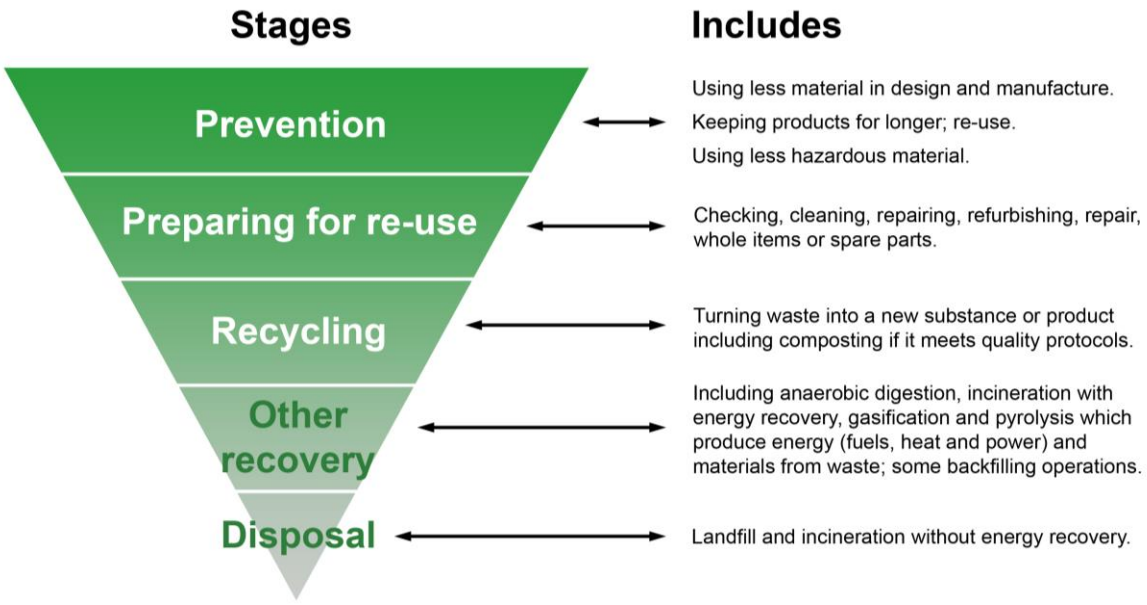

Figure 1 - Waste Hierarchy Diagram

5.3 Materials Use

As mentioned above it is the design team's intention to minimise waste during the construction process through careful consideration of materials and construction methodology. The building, wherever possible, will use BRE Green Guide 'A' rated materials and manufacturers will be chosen that can demonstrate their products are sustainably sourced and manufactured.

5.4 Water Efficiency

All taps, toilets and showers will be specified that are considered to be low water use.

The water usage for the flats will not exceed a maximum of 110 litres/person/day (including 5 litres for external water use) as required by the Camden Local Plan.

Calculations to prove how this can be achieved can be seen below. These calculations will be updated at later design stages once specific sanitaryware has been selected.

Table 4 - Water Efficiency Calculator

Installation Type	Unit of Measure	Capacity / Flow Rate	Use Factor	Fixed Use (litres/person/day)	Litres / person / day
WC (dual flush)	Full Flush Volume (litres)	4	1.46	0	5.84
	Part Flush Volume (litres)	2.6	2.96	0	7.70
Taps (excluding kitchen / utility room taps)	Flow Rate (litres / minute)	5	1.58	1.58	9.48
Bath (where shower also present)	Capacity to Overflow (litres)	170	0.11	0	18.70
Shower (where bath also present)	Flow Rate (litres / minute)	8	4.37	0	34.96
Kitchen / Utility Room Sink Taps	Flow Rate (litres / minute)	6	0.44	10.36	13.00
Washing Machine	Litres / kg Dry Load	8.17	2.10	0	17.16
Dishwasher	Litres / Place Setting	1.25	3.60	0	4.50
	Total Calculated Use (litres / person / day)				111.33
	Contribution from Greywater (litres / person / day)				0.00
	Contribution from Rainwater (litres / person / day)				0.00
	Normalisation Factor				0.91
	Total Internal Water Consumption (litres / person / day)				**101.31**
	External Water Use (litres / person / day)				**5.00**
	Overall Total Water Consumption (litres / person / day)				**106.31**

5.5 Flood Risk

The extent of possible flooding on the site has also been analysed using data from the government flood warning information service.

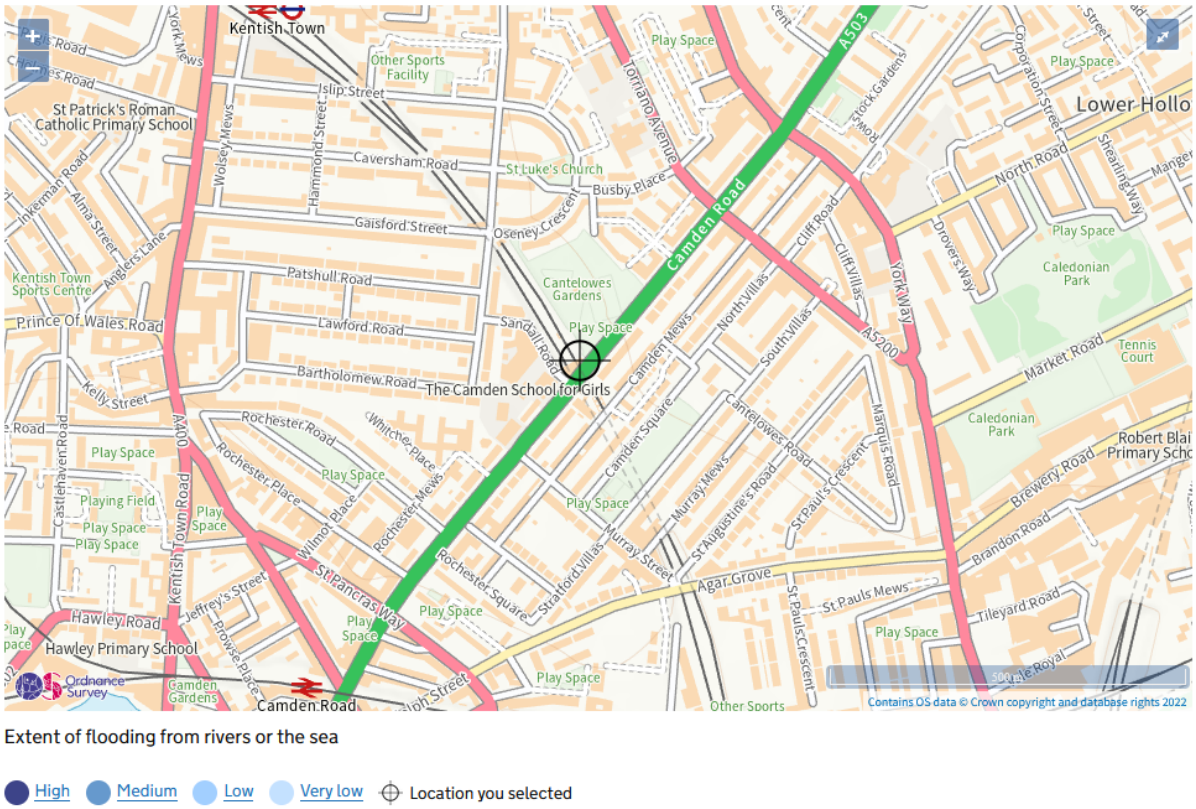

Figure 2 - Flood Risk Map for the Site

The flood map shows that the proposed development site is within an area of very low risk from flooding from rivers or sea.

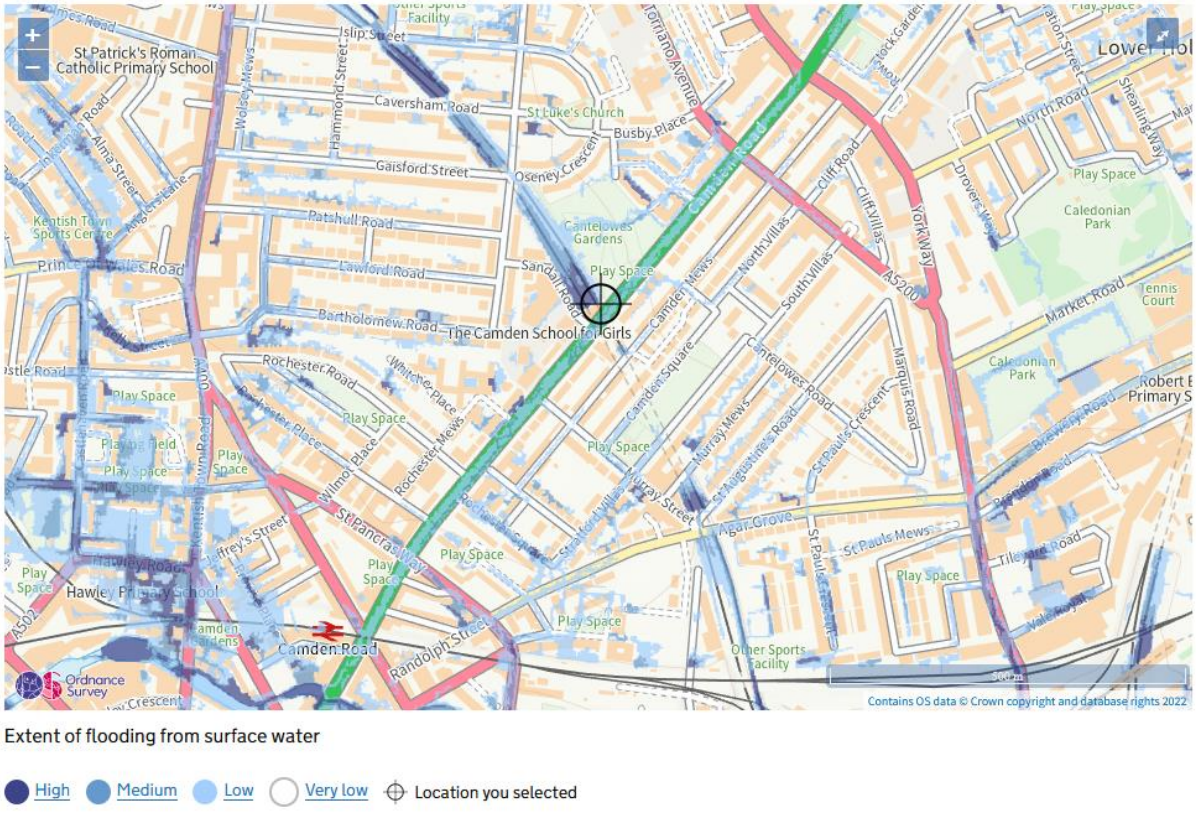

Figure 3 - Surface Water Map for the Site

The surface water flood map service states that the proposed site sits within an area of risk from surface water flooding. The final drainage (SuDS) design should ensure that run off rates achieve greenfield standards (if feasible).

5.6 Air Quality

The proposed development will not adversely impact upon the air quality of the location. The proposed gas boilers used within the flats will be low output, thanks to the high levels of insulation, they will also be specified to be low NOx emission boilers only.

Appendix A - Part L 2021 SAP 10.2 Calculation Sheets

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Elmhurst Sap 10 SAP 10 program, 1.0

Date: Thu 22 Sep 2022 12:10:26

Project Information			
Assessed By	Darren Coham	Building Type	Flat, Detached
OCDEA Registration	EES/022007	Assessment Date	2022-09-22

Dwelling Details			
Assessment Type	As built	Total Floor Area	49 m^2
Site Reference	Flat 1	Plot Reference	00001
Address			

Client Details	
Name	-
Company	-
Address	-, -, -, -, -

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate		
Fuel for main heating system	Mains gas	
Target carbon dioxide emission rate	*18.32 $kgCO_2/m^2$*	
Dwelling carbon dioxide emission rate	16.05 $kgCO_2/m^2$	OK
1b Target primary energy rate and dwelling primary energy		
Target primary energy	*97.81 kWh_{PE}/m^2*	
Dwelling primary energy	85.69 kWh_{PE}/m^2	OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency		
Target fabric energy efficiency	*48.3 kWh/m^2*	
Dwelling fabric energy efficiency	44.1 kWh/m^2	OK

2a Fabric U-values				
Element	***Maximum permitted average U-Value [W/m^2K]***	**Dwelling average U-Value [W/m^2K]**	**Element with highest individual U-Value**	
External walls	*0.26*	0.18	Walls (1) (0.18)	OK
Party walls	*0.2*	N/A	N/A	**N/A**
Curtain walls	*1.6*	N/A	N/A	**N/A**
Floors	*0.18*	0.13	Heatloss Floor 1 (0.13)	OK
Roofs	*0.16*	N/A	N/A	**N/A**
Windows, doors, and roof windows	*1.6*	1.18	w1 (1.2)	OK
Rooflights	*2.2*	N/A	N/A	**N/A**

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))		
Name	**Net area [m^2]**	**U-Value [W/m^2K]**
Exposed wall: Walls (1)	40.654	0.18
Sheltered wall: Walls (2)	17.1025	0.18
Ground floor: Heatloss Floor 1, Heatloss Floor 1	49.46	0.13

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	**Area [m^2]**	**Orientation**	**Frame factor**	**U-Value [W/m^2K]**
ed1, Door	1.9475	South East	N/A	1 **(!)**
w1, windows	3.06	North East	0.8	1.2
w2, windows	3.06	North East	0.8	1.2
pd1, windows	6.72	North West	0.8	1.2
w3, windows	1.836	West	0.8	1.2
w4, windows	3.06	South West	0.8	1.2

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part **1 - Main Dwelling**: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	**Junction detail**	**Source**	**Psi value [W/mK]**	**Drawing / reference**
External wall	E2: Other lintels (including other steel lintels)	Government-approved scheme	0.042	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E4: Jamb	Government-approved scheme	0.035 **(!)**	
External wall	E5: Ground floor (normal)	Government-approved scheme	0.075	
External wall	E16: Corner (normal)	Government-approved scheme	0.042	
External wall	E7: Party floor between dwellings (in blocks of flats)	Government-approved scheme	0.027 **(!)**	

3 Air permeability (better than typically expected values are flagged with a subsequent (!))		
Maximum permitted air permeability at 50Pa	*8 m^3/hm^2*	
Dwelling air permeability at 50Pa	3 m^3/hm^2, Measured value **(!)**	OK
Air permeability test certificate reference		

4 Space heating	
Main heating system 1: Boiler with radiators or underfloor heating - Mains gas	
Efficiency	89.2%
Emitter type	Radiators
Flow temperature	45°C
System type	Combi boiler
Manufacturer	Bosch Thermotechnology
Model	Greenstar
Commissioning	
Secondary heating system: N/A	
Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water	
Cylinder/store - type: N/A	
Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	
Waste water heat recovery system 1 - type: N/A	
Efficiency	
Manufacturer	
Model	

6 Controls	
Main heating 1 - type: Programmer, room thermostat, and TRVs	
Function	
Ecodesign class	
Manufacturer	
Model	
Water heating - type: N/A	
Manufacturer	
Model	

7 Lighting		
Minimum permitted light source efficacy	*75 lm/W*	
Lowest light source efficacy	80 lm/W	OK
External lights control	N/A	

8 Mechanical ventilation		
System type: N/A		
Maximum permitted specific fan power	*N/A*	
Specific fan power	N/A	**N/A**
Minimum permitted heat recovery efficiency	*N/A*	
Heat recovery efficiency	N/A	**N/A**
Manufacturer/Model		
Commissioning		

9 Local generation	
Technology type: **Photovoltaic system (1)**	
Peak power	0.68 kWp
Orientation	South
Pitch	30°
Overshading	None or very little
Manufacturer	
MCS certificate	

10 Heat networks
N/A

11 Supporting documentary evidence	
Documentary evidence identified in 11.1 and 11.2 is needed to confirm the data values used for any calculations undertaken, manufacturer declarations made, and tests performed as reflected in this "As built" BREL Compliance Report are correct. 11.1 SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required. 11.2 Indicative photographic evidence of key stages during construction (guidance within Approved Document L, Volume 1 – Appendix B) that confirms the products identified in this BREL Compliance Report are used in this dwelling, and workmanship is of sufficient quality to support the calculated values claimed in 2a to 2d.	

12 Declarations	
a. Assessor Declaration	
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design and construction information submitted for this dwelling for the purpose of carrying out the assessment, and that the supporting documentary evidence (identified in 11.1 and 11.2) pursuant to Part L of the Building Regulations 2010 (as amended) has been reviewed in the course of preparing this BREL Compliance Report.	
Signed: Name:	Assessor ID: Date:
b. Client Declaration	
This declaration by the client is confirmation that the dwelling has been constructed and completed according to the specifications set out in this BREL Compliance Report, and that photographic evidence of key stages, as described in 11.2, has been provided to the Assessor for this dwelling.	
Signed: Name:	Organisation: Date:

Summary for Input Data

elmhurst energy

Property Reference	Flat 1	**Issued on Date**	22/09/2022
Assessment Reference	00001	**Prop Type Ref**	
Property			

SAP Rating	88 B	**DER**	16.05	**TER**	18.32
Environmental	89 B	**% DER<TER**	12.39		
CO_2 Emissions (t/year)	0.69	**DFEE**	44.10	**TFEE**	48.29
Compliance Check	See BREL	**% DFEE < TFEE**	8.67		
% DPER < TPER	12.39	**DPER**	85.69	**TPER**	97.81

Assessor Details	Mr. Darren Coham	**Assessor ID**	R789-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	Southeast	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Detached	
Position of Flat	Ground-floor flat	
Which Floor	0	
2.0 Number of Storeys	1	
3.0 Date Built	2022	
4.0 Sheltered Sides	2	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	250.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	m	m²	m
1st Storey:	30.38 m	49.46 m²	2.55 m
2nd Storey:	m	m²	m
3rd Storey:	m	m²	m
4th Storey:	m	m²	m
5th Storey:	m	m²	m
6th Storey:	m	m²	m
7th Storey:	m	m²	m
8th Storey:	m	m²	m

8.0 Living Area	22.96	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.18		58.39	40.65	0.00	None	17.74	Enter Gross Area
wall to corridor	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.18		19.05	17.10	0.50	Stairwell Stairwell 1	1.95	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Single plasterboard on dabs on both sides, dense blocks, cavity or cavity fill	0.00		39.19		None

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Concrete floor slab, carpeted	100.00	49.46

Summary for Input Data

elmhurst energy

11.0 Heat Loss Floors

Description	Type	Storey Index	Construction	U-Value (W/m²K)	Shelter Code	Shelter Factor	Kappa (kJ/m²K)	Area (m²)
Heatloss Floor 1	Ground Floor - Solid	Lowest occupied	Slab on ground, screed over insulation	0.13	None	0.00	110.00	49.46

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.80	1.20
Door	Manufacturer	Door to Corridor							1.00

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
ed1	Door	wall to corridor	South East	1.95	
w1	windows	External Wall 1	North East	3.06	
w2	windows	External Wall 1	North East	3.06	
pd1	windows	External Wall 1	North West	6.72	
w3	windows	External Wall 1	West	1.84	
w4	windows	External Wall 1	South West	3.06	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E2 Other lintels (including other steel lintels)	Gov Approved Scheme	10.07	0.04	0.04	Yes
E4 Jamb	Gov Approved Scheme	22.98	0.04	0.04	Yes
E5 Ground floor (normal)	Gov Approved Scheme	30.38	0.08	0.08	Yes
E16 Corner (normal)	Gov Approved Scheme	10.20	0.04	0.04	Yes
E7 Party floor between dwellings (in blocks of flats)	Gov Approved Scheme	30.38	0.03	0.03	No

Y-value	0.04	W/m²K

18.0 Pressure Testing	Yes	
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP_{50}	3.00	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	No	

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No	

22.0 Lighting

No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	80.00	8	640	10

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17511	
Fuel Type	Mains gas	
In Winter	89.20	
In Summer	87.20	
Model Name	Greenstar	
Manufacturer	Bosch Thermotechnology	
System Type	Combi boiler	
Controls SAP Code	2106	
Delayed Start Stat	Yes	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	

Summary for Input Data

elmhurst energy

Heating Pump Age	2013 or later
Heat Emitter	Radiators
Flow Temperature	Enter value
Flow Temperature Value	45.00
Boiler Interlock	Yes
Combi boiler type	Standard Combi
Combi keep hot type	Gas/Oil, time clock

25.0 Main Heating 2 None

26.0 Heat Networks None

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1										
Heat source 2										
Heat source 3										
Heat source 4										
Heat source 5										

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	No
Cold Water Source	From mains
Bath Count	1

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

In Airing Cupboard: No

32.0 Photovoltaic Unit Multiple Dwellings – Connected

Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	Yes
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.68	South	30°	None Or Little		No	1.00		

34.0 Small-scale Hydro None

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
			0	0
			0	0
			0	0

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Elmhurst Sap 10 SAP 10 program, 1.0

Date: Thu 22 Sep 2022 12:12:48

Project Information			
Assessed By	Darren Coham	Building Type	Flat, Semi-detached
OCDEA Registration	EES/022007	Assessment Date	2022-09-22

Dwelling Details			
Assessment Type	As built	Total Floor Area	36 m^2
Site Reference	Flat 2	Plot Reference	00001
Address			

Client Details	
Name	-
Company	-
Address	-, -, -, -, -

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate		
Fuel for main heating system	Mains gas	
Target carbon dioxide emission rate	*18.85 $kgCO_2/m^2$*	
Dwelling carbon dioxide emission rate	15.52 $kgCO_2/m^2$	OK
1b Target primary energy rate and dwelling primary energy		
Target primary energy	*101.12 kWh_{PE}/m^2*	
Dwelling primary energy	82.59 kWh_{PE}/m^2	OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency		
Target fabric energy efficiency	*41.6 kWh/m^2*	
Dwelling fabric energy efficiency	35.9 kWh/m^2	OK

2a Fabric U-values				
Element	***Maximum permitted average U-Value [W/m^2K]***	**Dwelling average U-Value [W/m^2K]**	**Element with highest individual U-Value**	
External walls	*0.26*	0.18	Walls (1) (0.18)	OK
Party walls	*0.2*	0	Party Wall (1) (0)	**N/A**
Curtain walls	*1.6*	0	N/A	**N/A**
Floors	*0.18*	N/A	N/A	**N/A**
Roofs	*0.16*	N/A	N/A	**N/A**
Windows, doors, and roof windows	*1.6*	1.17	w1 (1.2)	OK
Rooflights	*2.2*	N/A	N/A	**N/A**

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))		
Name	**Net area [m^2]**	**U-Value [W/m^2K]**
Exposed wall: Walls (1)	41.305	0.18
Sheltered wall: Walls (2)	11.9225	0.18
Party wall: Party Wall (1)	2.61	0 **(!)**

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	**Area [m^2]**	**Orientation**	**Frame factor**	**U-Value [W/m^2K]**
w1, windows	3.57	South East	0.8	1.2
w2, windows	3.57	South East	0.8	1.2
w3, windows	2.415	North West	0.8	1.2
w4, windows	2.1	North East	0.8	1.2
ed1, Door	1.9475	South West	N/A	1 **(!)**

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part **1 - Main Dwelling**: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	**Junction detail**	**Source**	**Psi value [W/mK]**	**Drawing / reference**
External wall	E2: Other lintels (including other steel lintels)	Government-approved scheme	0.042	
External wall	E3: Sill	Government-approved scheme	0.032 **(!)**	
External wall	E4: Jamb	Government-approved scheme	0.035 **(!)**	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E7: Party floor between dwellings (in blocks of flats)	Government-approved scheme	0.027 **(!)**	
External wall	E16: Corner (normal)	Government-approved scheme	0.042	
External wall	E18: Party wall between dwellings	Government-approved scheme	0.056	
Party wall	P3: Intermediate floor between dwellings (in blocks of flats)	SAP table default	0 **(!)**	

3 Air permeability (better than typically expected values are flagged with a subsequent (!))		
Maximum permitted air permeability at 50Pa	*8 m^3/hm^2*	
Dwelling air permeability at 50Pa	3 m^3/hm^2, Measured value **(!)**	OK
Air permeability test certificate reference		

4 Space heating	
Main heating system 1: Boiler with radiators or underfloor heating - Mains gas	
Efficiency	89.2%
Emitter type	Radiators
Flow temperature	45°C
System type	Combi boiler
Manufacturer	Bosch Thermotechnology
Model	Greenstar
Commissioning	
Secondary heating system: N/A	
Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water	
Cylinder/store - type: N/A	
Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	
Waste water heat recovery system 1 - type: N/A	
Efficiency	
Manufacturer	
Model	

6 Controls	
Main heating 1 - type: Programmer, room thermostat, and TRVs	
Function	
Ecodesign class	
Manufacturer	
Model	
Water heating - type: N/A	
Manufacturer	
Model	

7 Lighting		
Minimum permitted light source efficacy	*75 lm/W*	
Lowest light source efficacy	80 lm/W	OK
External lights control	N/A	

8 Mechanical ventilation		
System type: N/A		
Maximum permitted specific fan power	*N/A*	
Specific fan power	N/A	**N/A**
Minimum permitted heat recovery efficiency	*N/A*	
Heat recovery efficiency	N/A	**N/A**
Manufacturer/Model		
Commissioning		

9 Local generation	
Technology type: **Photovoltaic system (1)**	
Peak power	0.68 kWp
Orientation	South
Pitch	30°
Overshading	None or very little
Manufacturer	
MCS certificate	

10 Heat networks
N/A

11 Supporting documentary evidence	
Documentary evidence identified in 11.1 and 11.2 is needed to confirm the data values used for any calculations undertaken, manufacturer declarations made, and tests performed as reflected in this "As built" BREL Compliance Report are correct. 11.1 SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required. 11.2 Indicative photographic evidence of key stages during construction (guidance within Approved Document L, Volume 1 – Appendix B) that confirms the products identified in this BREL Compliance Report are used in this dwelling, and workmanship is of sufficient quality to support the calculated values claimed in 2a to 2d.	

12 Declarations	
a. Assessor Declaration	
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design and construction information submitted for this dwelling for the purpose of carrying out the assessment, and that the supporting documentary evidence (identified in 11.1 and 11.2) pursuant to Part L of the Building Regulations 2010 (as amended) has been reviewed in the course of preparing this BREL Compliance Report.	
Signed: Name:	Assessor ID: Date:
b. Client Declaration	
This declaration by the client is confirmation that the dwelling has been constructed and completed according to the specifications set out in this BREL Compliance Report, and that photographic evidence of key stages, as described in 11.2, has been provided to the Assessor for this dwelling.	
Signed: Name:	Organisation: Date:

Summary for Input Data

elmhurst energy

Property Reference	Flat 2	**Issued on Date**	22/09/2022
Assessment Reference	00001	**Prop Type Ref**	
Property			

SAP Rating	89 B	**DER**	15.52	**TER**	18.85
Environmental	91 B	**% DER<TER**	17.67		
CO_2 Emissions (t/year)	0.49	**DFEE**	35.91	**TFEE**	41.56
Compliance Check	See BREL	**% DFEE < TFEE**	13.60		
% DPER < TPER	18.32	**DPER**	82.59	**TPER**	101.12

Assessor Details	Mr. Darren Coham	**Assessor ID**	R789-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	Southwest	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Mid-floor flat	
Which Floor	1	
2.0 Number of Storeys	1	
3.0 Date Built	2022	
4.0 Sheltered Sides	1	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	250.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	m	m²	m
1st Storey:	27.21 m	36.27 m²	2.55 m
2nd Storey:	m	m²	m
3rd Storey:	m	m²	m
4th Storey:	m	m²	m
5th Storey:	m	m²	m
6th Storey:	m	m²	m
7th Storey:	m	m²	m
8th Storey:	m	m²	m

8.0 Living Area	23.72	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.18		52.96	41.31	0.00	None	11.66	Enter Gross Area
wall to corridor	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.18		13.87	11.92	0.50	Stairwell Stairwell 1	1.95	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Single plasterboard on dabs on both sides, dense blocks, cavity or cavity fill	0.00		2.61		None

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Concrete floor slab, carpeted	100.00	36.27

Summary for Input Data

elmhurst energy

11.1 Party Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Party Floor 1	Lowest occupied	Concrete floor slab, carpeted	100.00	36.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.80	1.20
Door	Manufacturer	Door to Corridor							1.00

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
w1	windows	External Wall 1	South East	3.57	
w2	windows	External Wall 1	South East	3.57	
w3	windows	External Wall 1	North West	2.42	
w4	windows	External Wall 1	North East	2.10	
ed1	Door	wall to corridor	South West	1.95	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E2 Other lintels (including other steel lintels)	Gov Approved Scheme	6.50	0.04	0.04	Yes
E3 Sill	Gov Approved Scheme	5.55	0.03	0.03	Yes
E4 Jamb	Gov Approved Scheme	20.90	0.04	0.04	Yes
E7 Party floor between dwellings (in blocks of flats)	Gov Approved Scheme	54.42	0.03	0.03	No
E16 Corner (normal)	Gov Approved Scheme	5.10	0.04	0.04	Yes
E18 Party wall between dwellings	Gov Approved Scheme	5.10	0.06	0.06	Yes
P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	Table K1 - Default	1.03	0.00	0.00	No

Y-value	0.05	W/m²K

18.0 Pressure Testing	Yes	
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP_{50}	3.00	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	No	

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No	

22.0 Lighting

No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	80.00	8	640	10

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17511	
Fuel Type	Mains gas	
In Winter	89.20	
In Summer	87.20	
Model Name	Greenstar	
Manufacturer	Bosch Thermotechnology	
System Type	Combi boiler	
Controls SAP Code	2106	
Delayed Start Stat	Yes	
Flue Type	Balanced	

Summary for Input Data

elmhurst energy

Fan Assisted Flue	Yes
Is MHS Pumped	Pump in heated space
Heating Pump Age	2013 or later
Heat Emitter	Radiators
Flow Temperature	Enter value
Flow Temperature Value	45.00
Boiler Interlock	Yes
Combi boiler type	Standard Combi
Combi keep hot type	Gas/Oil, time clock

25.0 Main Heating 2 None

26.0 Heat Networks None

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1										
Heat source 2										
Heat source 3										
Heat source 4										
Heat source 5										

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	No
Cold Water Source	From mains
Bath Count	1

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

In Airing Cupboard	No

32.0 Photovoltaic Unit Multiple Dwellings – Connected

Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	Yes
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.68	South	30°	None Or Little		No	1.00		

34.0 Small-scale Hydro None

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
			0	0
			0	0
			0	0

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Elmhurst Sap 10 SAP 10 program, 1.0

Date: Thu 22 Sep 2022 12:13:57

Project Information			
Assessed By	Darren Coham	Building Type	Flat, Semi-detached
OCDEA Registration	EES/022007	Assessment Date	2022-09-22

Dwelling Details			
Assessment Type	As built	Total Floor Area	50 m^2
Site Reference	Flat 3	Plot Reference	3
Address			

Client Details	
Name	-
Company	-
Address	-, -, -, -, -

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate		
Fuel for main heating system	Mains gas	
Target carbon dioxide emission rate	*16.18 $kgCO_2/m^2$*	
Dwelling carbon dioxide emission rate	14.47 $kgCO_2/m^2$	OK
1b Target primary energy rate and dwelling primary energy		
Target primary energy	*86.31 kWh_{PE}/m^2*	
Dwelling primary energy	77.16 kWh_{PE}/m^2	OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency		
Target fabric energy efficiency	*38.9 kWh/m^2*	
Dwelling fabric energy efficiency	38.5 kWh/m^2	OK

2a Fabric U-values				
Element	***Maximum permitted average U-Value [W/m^2K]***	**Dwelling average U-Value [W/m^2K]**	**Element with highest individual U-Value**	
External walls	*0.26*	0.18	Walls (1) (0.18)	OK
Party walls	*0.2*	0	Party Wall (1) (0)	**N/A**
Curtain walls	*1.6*	0	N/A	**N/A**
Floors	*0.18*	N/A	N/A	**N/A**
Roofs	*0.16*	N/A	N/A	**N/A**
Windows, doors, and roof windows	*1.6*	1.18	w1 (1.2)	OK
Rooflights	*2.2*	N/A	N/A	**N/A**

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))		
Name	**Net area [m^2]**	**U-Value [W/m^2K]**
Exposed wall: Walls (1)	45.4638	0.18
Sheltered wall: Walls (2)	10.4225	0.18
Party wall: Party Wall (1)	2.61	0 **(!)**

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	**Area [m^2]**	**Orientation**	**Frame factor**	**U-Value [W/m^2K]**
w1, windows	3.57	South West	0.8	1.2
w2, windows	2.1462	West	0.8	1.2
w3, windows	3.57	North East	0.8	1.2
w4, windows	3.57	North East	0.8	1.2
ed1, Door	1.9475	South West	N/A	1 **(!)**
pd1, windows	7.5	North West	0.8	1.2

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part **1 - Main Dwelling**: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	**Junction detail**	**Source**	**Psi value [W/mK]**	**Drawing / reference**
External wall	E2: Other lintels (including other steel lintels)	Government-approved scheme	0.042	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E4: Jamb	Government-approved scheme	0.035 **(!)**	
External wall	E7: Party floor between dwellings (in blocks of flats)	Government-approved scheme	0.027 **(!)**	
External wall	E16: Corner (normal)	Government-approved scheme	0.042	
External wall	E18: Party wall between dwellings	Government-approved scheme	0.056	
Party wall	P3: Intermediate floor between dwellings (in blocks of flats)	Government-approved scheme	0 **(!)**	

3 Air permeability (better than typically expected values are flagged with a subsequent (!))		
Maximum permitted air permeability at 50Pa	*8 m^3/hm^2*	
Dwelling air permeability at 50Pa	3 m^3/hm^2, Measured value **(!)**	OK
Air permeability test certificate reference		

4 Space heating	
Main heating system 1: Boiler with radiators or underfloor heating - Mains gas	
Efficiency	89.2%
Emitter type	Radiators
Flow temperature	45°C
System type	Combi boiler
Manufacturer	Bosch Thermotechnology
Model	Greenstar
Commissioning	
Secondary heating system: N/A	
Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water	
Cylinder/store - type: N/A	
Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	
Waste water heat recovery system 1 - type: N/A	
Efficiency	
Manufacturer	
Model	

6 Controls	
Main heating 1 - type: Programmer, room thermostat, and TRVs	
Function	
Ecodesign class	
Manufacturer	
Model	
Water heating - type: N/A	
Manufacturer	
Model	

7 Lighting		
Minimum permitted light source efficacy	*75 lm/W*	
Lowest light source efficacy	80 lm/W	OK
External lights control	N/A	

8 Mechanical ventilation		
System type: N/A		
Maximum permitted specific fan power	*N/A*	
Specific fan power	N/A	**N/A**
Minimum permitted heat recovery efficiency	*N/A*	
Heat recovery efficiency	N/A	**N/A**
Manufacturer/Model		
Commissioning		

9 Local generation	
Technology type: **Photovoltaic system (1)**	
Peak power	0.68 kWp
Orientation	South
Pitch	30°
Overshading	None or very little
Manufacturer	
MCS certificate	

10 Heat networks
N/A

11 Supporting documentary evidence	
Documentary evidence identified in 11.1 and 11.2 is needed to confirm the data values used for any calculations undertaken, manufacturer declarations made, and tests performed as reflected in this "As built" BREL Compliance Report are correct. 11.1 SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required. 11.2 Indicative photographic evidence of key stages during construction (guidance within Approved Document L, Volume 1 – Appendix B) that confirms the products identified in this BREL Compliance Report are used in this dwelling, and workmanship is of sufficient quality to support the calculated values claimed in 2a to 2d.	

12 Declarations	
a. Assessor Declaration	
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design and construction information submitted for this dwelling for the purpose of carrying out the assessment, and that the supporting documentary evidence (identified in 11.1 and 11.2) pursuant to Part L of the Building Regulations 2010 (as amended) has been reviewed in the course of preparing this BREL Compliance Report.	
Signed: Name:	Assessor ID: Date:
b. Client Declaration	
This declaration by the client is confirmation that the dwelling has been constructed and completed according to the specifications set out in this BREL Compliance Report, and that photographic evidence of key stages, as described in 11.2, has been provided to the Assessor for this dwelling.	
Signed: Name:	Organisation: Date:

Summary for Input Data

elmhurst energy

Property Reference	Flat 3	**Issued on Date**	22/09/2022
Assessment Reference	3	**Prop Type Ref**	
Property			

SAP Rating	89 B	**DER**	14.47	**TER**	16.18
Environmental	90 B	**% DER<TER**	10.57		
CO_2 Emissions (t/year)	0.63	**DFEE**	38.51	**TFEE**	38.90
Compliance Check	See BREL	**% DFEE < TFEE**	0.99		
% DPER < TPER	10.60	**DPER**	77.16	**TPER**	86.31

Assessor Details	Mr. Darren Coham	**Assessor ID**	R789-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	Southwest	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Mid-floor flat	
Which Floor	2	
2.0 Number of Storeys	1	
3.0 Date Built	2022	
4.0 Sheltered Sides	1	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	250.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	m	m²	m
1st Storey:	30.66 m	49.84 m²	2.55 m
2nd Storey:	m	m²	m
3rd Storey:	m	m²	m
4th Storey:	m	m²	m
5th Storey:	m	m²	m
6th Storey:	m	m²	m
7th Storey:	m	m²	m
8th Storey:	m	m²	m

8.0 Living Area	22.96	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.18		65.82	45.46	0.00	None	20.36	Enter Gross Area
wall to corridor	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.18		12.37	10.42	0.50	Stairwell Stairwell 1	1.95	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Solid Wall	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00		2.61		None

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Concrete floor slab, carpeted	100.00	49.84

Summary for Input Data

elmhurst energy

11.1 Party Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Party Floor 1	Lowest occupied	Concrete floor slab, carpeted	100.00	49.84

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.80	1.20
Door	Manufacturer	Door to Corridor							1.00

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
w1	windows	External Wall 1	South West	3.57	
w2	windows	External Wall 1	West	2.15	
w3	windows	External Wall 1	North East	3.57	
w4	windows	External Wall 1	North East	3.57	
ed1	Door	wall to corridor	South West	1.95	
pd1	windows	External Wall 1	North West	7.50	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E2 Other lintels (including other steel lintels)	Gov Approved Scheme	10.07	0.04	0.04	Yes
E4 Jamb	Gov Approved Scheme	25.90	0.04	0.04	Yes
E7 Party floor between dwellings (in blocks of flats)	Gov Approved Scheme	61.32	0.03	0.03	No
E16 Corner (normal)	Gov Approved Scheme	5.10	0.04	0.04	Yes
E18 Party wall between dwellings	Gov Approved Scheme	5.10	0.06	0.06	Yes
P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	Gov Approved Scheme	1.03	0.00	0.00	No

Y-value	0.04	W/m²K

18.0 Pressure Testing	Yes	
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP_{50}	3.00	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	No	

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No	

22.0 Lighting

No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	80.00	8	640	10

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17511	
Fuel Type	Mains gas	
In Winter	89.20	
In Summer	87.20	
Model Name	Greenstar	
Manufacturer	Bosch Thermotechnology	
System Type	Combi boiler	
Controls SAP Code	2106	
Delayed Start Stat	Yes	
Flue Type	Balanced	

Summary for Input Data

elmhurst energy

Fan Assisted Flue	Yes
Is MHS Pumped	Pump in heated space
Heating Pump Age	2013 or later
Heat Emitter	Radiators
Flow Temperature	Enter value
Flow Temperature Value	45.00
Boiler Interlock	Yes
Combi boiler type	Standard Combi
Combi keep hot type	Gas/Oil, time clock

25.0 Main Heating 2 None

26.0 Heat Networks None

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1										
Heat source 2										
Heat source 3										
Heat source 4										
Heat source 5										

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	No
Cold Water Source	From mains
Bath Count	1

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

In Airing Cupboard	No

32.0 Photovoltaic Unit Multiple Dwellings – Connected

Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	Yes
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.68	South	30°	None Or Little		No	1.00		

34.0 Small-scale Hydro None

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
			0	0
			0	0
			0	0

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Elmhurst Sap 10 SAP 10 program, 1.0

Date: Thu 22 Sep 2022 12:15:05

Project Information			
Assessed By	Darren Coham	Building Type	Flat, Semi-detached
OCDEA Registration	EES/022007	Assessment Date	2022-09-22

Dwelling Details			
Assessment Type	As built	Total Floor Area	36 m^2
Site Reference	Flat 4	Plot Reference	4
Address			

Client Details	
Name	-
Company	-
Address	-, -, -, -, -

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate		
Fuel for main heating system	Mains gas	
Target carbon dioxide emission rate	*18.85 $kgCO_2/m^2$*	
Dwelling carbon dioxide emission rate	15.52 $kgCO_2/m^2$	OK
1b Target primary energy rate and dwelling primary energy		
Target primary energy	*101.12 kWh_{PE}/m^2*	
Dwelling primary energy	82.59 kWh_{PE}/m^2	OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency		
Target fabric energy efficiency	*41.6 kWh/m^2*	
Dwelling fabric energy efficiency	35.9 kWh/m^2	OK

2a Fabric U-values				
Element	***Maximum permitted average U-Value [W/m^2K]***	**Dwelling average U-Value [W/m^2K]**	**Element with highest individual U-Value**	
External walls	*0.26*	0.18	Walls (1) (0.18)	OK
Party walls	*0.2*	0	Party Wall (1) (0)	**N/A**
Curtain walls	*1.6*	0	N/A	**N/A**
Floors	*0.18*	N/A	N/A	**N/A**
Roofs	*0.16*	N/A	N/A	**N/A**
Windows, doors, and roof windows	*1.6*	1.17	w1 (1.2)	OK
Rooflights	*2.2*	N/A	N/A	**N/A**

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))		
Name	**Net area [m^2]**	**U-Value [W/m^2K]**
Exposed wall: Walls (1)	41.305	0.18
Sheltered wall: Walls (2)	11.9225	0.18
Party wall: Party Wall (1)	2.61	0 **(!)**

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	**Area [m^2]**	**Orientation**	**Frame factor**	**U-Value [W/m^2K]**
w1, windows	3.57	South East	0.8	1.2
w2, windows	3.57	South East	0.8	1.2
w3, windows	2.415	North West	0.8	1.2
w4, windows	2.1	North East	0.8	1.2
ed1, Door	1.9475	South West	N/A	1 **(!)**

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part **1 - Main Dwelling**: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	**Junction detail**	**Source**	**Psi value [W/mK]**	**Drawing / reference**
External wall	E2: Other lintels (including other steel lintels)	Government-approved scheme	0.042	
External wall	E3: Sill	Government-approved scheme	0.032 **(!)**	
External wall	E4: Jamb	Government-approved scheme	0.035 **(!)**	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E7: Party floor between dwellings (in blocks of flats)	Government-approved scheme	0.027 **(!)**	
External wall	E16: Corner (normal)	Government-approved scheme	0.042	
External wall	E18: Party wall between dwellings	Government-approved scheme	0.056	
Party wall	P3: Intermediate floor between dwellings (in blocks of flats)	SAP table default	0 **(!)**	

3 Air permeability (better than typically expected values are flagged with a subsequent (!))		
Maximum permitted air permeability at 50Pa	*8 m^3/hm^2*	
Dwelling air permeability at 50Pa	3 m^3/hm^2, Measured value **(!)**	OK
Air permeability test certificate reference		

4 Space heating	
Main heating system 1: Boiler with radiators or underfloor heating - Mains gas	
Efficiency	89.2%
Emitter type	Radiators
Flow temperature	45°C
System type	Combi boiler
Manufacturer	Bosch Thermotechnology
Model	Greenstar
Commissioning	
Secondary heating system: N/A	
Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water	
Cylinder/store - type: N/A	
Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	
Waste water heat recovery system 1 - type: N/A	
Efficiency	
Manufacturer	
Model	

6 Controls	
Main heating 1 - type: Programmer, room thermostat, and TRVs	
Function	
Ecodesign class	
Manufacturer	
Model	
Water heating - type: N/A	
Manufacturer	
Model	

7 Lighting		
Minimum permitted light source efficacy	*75 lm/W*	
Lowest light source efficacy	80 lm/W	OK
External lights control	N/A	

8 Mechanical ventilation		
System type: N/A		
Maximum permitted specific fan power	*N/A*	
Specific fan power	N/A	**N/A**
Minimum permitted heat recovery efficiency	*N/A*	
Heat recovery efficiency	N/A	**N/A**
Manufacturer/Model		
Commissioning		

9 Local generation	
Technology type: **Photovoltaic system (1)**	
Peak power	0.68 kWp
Orientation	South
Pitch	30°
Overshading	None or very little
Manufacturer	
MCS certificate	

10 Heat networks
N/A

11 Supporting documentary evidence	
Documentary evidence identified in 11.1 and 11.2 is needed to confirm the data values used for any calculations undertaken, manufacturer declarations made, and tests performed as reflected in this "As built" BREL Compliance Report are correct. 11.1 SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required. 11.2 Indicative photographic evidence of key stages during construction (guidance within Approved Document L, Volume 1 – Appendix B) that confirms the products identified in this BREL Compliance Report are used in this dwelling, and workmanship is of sufficient quality to support the calculated values claimed in 2a to 2d.	

12 Declarations	
a. Assessor Declaration	
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design and construction information submitted for this dwelling for the purpose of carrying out the assessment, and that the supporting documentary evidence (identified in 11.1 and 11.2) pursuant to Part L of the Building Regulations 2010 (as amended) has been reviewed in the course of preparing this BREL Compliance Report.	
Signed: Name:	Assessor ID: Date:
b. Client Declaration	
This declaration by the client is confirmation that the dwelling has been constructed and completed according to the specifications set out in this BREL Compliance Report, and that photographic evidence of key stages, as described in 11.2, has been provided to the Assessor for this dwelling.	
Signed: Name:	Organisation: Date:

Summary for Input Data

elmhurst energy

Property Reference	Flat 4	**Issued on Date**	22/09/2022
Assessment Reference	4	**Prop Type Ref**	
Property			

SAP Rating	89 B	**DER**	15.52	**TER**	18.85
Environmental	91 B	**% DER<TER**	17.67		
CO_2 Emissions (t/year)	0.49	**DFEE**	35.91	**TFEE**	41.56
Compliance Check	See BREL	**% DFEE < TFEE**	13.60		
% DPER < TPER	18.32	**DPER**	82.59	**TPER**	101.12

Assessor Details	Mr. Darren Coham	**Assessor ID**	R789-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	Southwest	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Mid-floor flat	
Which Floor	2	
2.0 Number of Storeys	1	
3.0 Date Built	2022	
4.0 Sheltered Sides	1	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	250.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	m	m²	m
1st Storey:	27.21 m	36.27 m²	2.55 m
2nd Storey:	m	m²	m
3rd Storey:	m	m²	m
4th Storey:	m	m²	m
5th Storey:	m	m²	m
6th Storey:	m	m²	m
7th Storey:	m	m²	m
8th Storey:	m	m²	m

8.0 Living Area	23.72	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.18		52.96	41.31	0.00	None	11.66	Enter Gross Area
wall to corridor	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.18		13.87	11.92	0.50	Stairwell Stairwell 1	1.95	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Filled Cavity with Edge Sealing	Single plasterboard on dabs on both sides, dense blocks, cavity or cavity fill	0.00		2.61		None

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Concrete floor slab, carpeted	100.00	36.27

Summary for Input Data

elmhurst energy

11.1 Party Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Party Floor 1	Lowest occupied	Concrete floor slab, carpeted	100.00	36.27

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.80	1.20
Door	Manufacturer	Door to Corridor							1.00

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
w1	windows	External Wall 1	South East	3.57	
w2	windows	External Wall 1	South East	3.57	
w3	windows	External Wall 1	North West	2.42	
w4	windows	External Wall 1	North East	2.10	
ed1	Door	wall to corridor	South West	1.95	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E2 Other lintels (including other steel lintels)	Gov Approved Scheme	6.50	0.04	0.04	Yes
E3 Sill	Gov Approved Scheme	5.55	0.03	0.03	Yes
E4 Jamb	Gov Approved Scheme	20.90	0.04	0.04	Yes
E7 Party floor between dwellings (in blocks of flats)	Gov Approved Scheme	54.42	0.03	0.03	No
E16 Corner (normal)	Gov Approved Scheme	5.10	0.04	0.04	Yes
E18 Party wall between dwellings	Gov Approved Scheme	5.10	0.06	0.06	Yes
P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	Table K1 - Default	1.03	0.00	0.00	No

Y-value	0.05	W/m²K

18.0 Pressure Testing	Yes	
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP_{50}	3.00	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	No	

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No	

22.0 Lighting

No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	80.00	8	640	10

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17511	
Fuel Type	Mains gas	
In Winter	89.20	
In Summer	87.20	
Model Name	Greenstar	
Manufacturer	Bosch Thermotechnology	
System Type	Combi boiler	
Controls SAP Code	2106	
Delayed Start Stat	Yes	
Flue Type	Balanced	

Summary for Input Data

elmhurst energy

Fan Assisted Flue	Yes
Is MHS Pumped	Pump in heated space
Heating Pump Age	2013 or later
Heat Emitter	Radiators
Flow Temperature	Enter value
Flow Temperature Value	45.00
Boiler Interlock	Yes
Combi boiler type	Standard Combi
Combi keep hot type	Gas/Oil, time clock

25.0 Main Heating 2 None

26.0 Heat Networks None

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1										
Heat source 2										
Heat source 3										
Heat source 4										
Heat source 5										

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	No
Cold Water Source	From mains
Bath Count	1

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

In Airing Cupboard	No

32.0 Photovoltaic Unit Multiple Dwellings – Connected

Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	Yes
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.68	South	30°	None Or Little		No	1.00		

34.0 Small-scale Hydro None

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
			0	0
			0	0
			0	0

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Elmhurst Sap 10 SAP 10 program, 1.0

Date: Thu 22 Sep 2022 12:16:11

Project Information			
Assessed By	Darren Coham	Building Type	Flat, Semi-detached
OCDEA Registration	EES/022007	Assessment Date	2022-09-22

Dwelling Details			
Assessment Type	As built	Total Floor Area	50 m^2
Site Reference	Flat 5	Plot Reference	5
Address			

Client Details	
Name	-
Company	-
Address	-, -, -, -, -

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate		
Fuel for main heating system	Mains gas	
Target carbon dioxide emission rate	*16.18 $kgCO_2/m^2$*	
Dwelling carbon dioxide emission rate	14.47 $kgCO_2/m^2$	**OK**
1b Target primary energy rate and dwelling primary energy		
Target primary energy	*86.31 kWh_{PE}/m^2*	
Dwelling primary energy	77.16 kWh_{PE}/m^2	**OK**
1c Target fabric energy efficiency and dwelling fabric energy efficiency		
Target fabric energy efficiency	*38.9 kWh/m^2*	
Dwelling fabric energy efficiency	38.5 kWh/m^2	**OK**

2a Fabric U-values				
Element	***Maximum permitted average U-Value [W/m^2K]***	**Dwelling average U-Value [W/m^2K]**	**Element with highest individual U-Value**	
External walls	*0.26*	0.18	Walls (1) (0.18)	**OK**
Party walls	*0.2*	0	Party Wall (1) (0)	**N/A**
Curtain walls	*1.6*	0	N/A	**N/A**
Floors	*0.18*	N/A	N/A	**N/A**
Roofs	*0.16*	N/A	N/A	**N/A**
Windows, doors, and roof windows	*1.6*	1.18	w1 (1.2)	**OK**
Rooflights	*2.2*	N/A	N/A	**N/A**

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))		
Name	**Net area [m^2]**	**U-Value [W/m^2K]**
Exposed wall: Walls (1)	45.4638	0.18
Sheltered wall: Walls (2)	10.4225	0.18
Party wall: Party Wall (1)	2.61	0 **(!)**

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	**Area [m^2]**	**Orientation**	**Frame factor**	**U-Value [W/m^2K]**
w1, windows	3.57	South West	0.8	1.2
w2, windows	2.1462	West	0.8	1.2
w3, windows	3.57	North East	0.8	1.2
w4, windows	3.57	North East	0.8	1.2
ed1, Door	1.9475	South West	N/A	1 **(!)**
pd1, windows	7.5	North West	0.8	1.2

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))				
Building part **1 - Main Dwelling**: Thermal bridging calculated from linear thermal transmittances for each junction				
Main element	**Junction detail**	**Source**	**Psi value [W/mK]**	**Drawing / reference**
External wall	E2: Other lintels (including other steel lintels)	Government-approved scheme	0.042	

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E4: Jamb	Government-approved scheme	0.035 **(!)**	
External wall	E7: Party floor between dwellings (in blocks of flats)	Government-approved scheme	0.027 **(!)**	
External wall	E16: Corner (normal)	Government-approved scheme	0.042	
External wall	E18: Party wall between dwellings	Government-approved scheme	0.056	
Party wall	P3: Intermediate floor between dwellings (in blocks of flats)	Government-approved scheme	0 **(!)**	

3 Air permeability (better than typically expected values are flagged with a subsequent (!))		
Maximum permitted air permeability at 50Pa	*8 m^3/hm^2*	
Dwelling air permeability at 50Pa	3 m^3/hm^2, Measured value **(!)**	OK
Air permeability test certificate reference		

4 Space heating	
Main heating system 1: Boiler with radiators or underfloor heating - Mains gas	
Efficiency	89.2%
Emitter type	Radiators
Flow temperature	45°C
System type	Combi boiler
Manufacturer	Bosch Thermotechnology
Model	Greenstar
Commissioning	
Secondary heating system: N/A	
Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water	
Cylinder/store - type: N/A	
Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	
Waste water heat recovery system 1 - type: N/A	
Efficiency	
Manufacturer	
Model	

6 Controls	
Main heating 1 - type: Programmer, room thermostat, and TRVs	
Function	
Ecodesign class	
Manufacturer	
Model	
Water heating - type: N/A	
Manufacturer	
Model	

7 Lighting		
Minimum permitted light source efficacy	*75 lm/W*	
Lowest light source efficacy	80 lm/W	OK
External lights control	N/A	

8 Mechanical ventilation		
System type: N/A		
Maximum permitted specific fan power	*N/A*	
Specific fan power	N/A	**N/A**
Minimum permitted heat recovery efficiency	*N/A*	
Heat recovery efficiency	N/A	**N/A**
Manufacturer/Model		
Commissioning		

9 Local generation	
Technology type: **Photovoltaic system (1)**	
Peak power	0.68 kWp
Orientation	South
Pitch	30°
Overshading	None or very little
Manufacturer	
MCS certificate	

10 Heat networks
N/A

11 Supporting documentary evidence	
Documentary evidence identified in 11.1 and 11.2 is needed to confirm the data values used for any calculations undertaken, manufacturer declarations made, and tests performed as reflected in this "As built" BREL Compliance Report are correct. 11.1 SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required. 11.2 Indicative photographic evidence of key stages during construction (guidance within Approved Document L, Volume 1 – Appendix B) that confirms the products identified in this BREL Compliance Report are used in this dwelling, and workmanship is of sufficient quality to support the calculated values claimed in 2a to 2d.	

12 Declarations	
a. Assessor Declaration	
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design and construction information submitted for this dwelling for the purpose of carrying out the assessment, and that the supporting documentary evidence (identified in 11.1 and 11.2) pursuant to Part L of the Building Regulations 2010 (as amended) has been reviewed in the course of preparing this BREL Compliance Report.	
Signed: Name:	Assessor ID: Date:
b. Client Declaration	
This declaration by the client is confirmation that the dwelling has been constructed and completed according to the specifications set out in this BREL Compliance Report, and that photographic evidence of key stages, as described in 11.2, has been provided to the Assessor for this dwelling.	
Signed: Name:	Organisation: Date:

Summary for Input Data

elmhurst energy

Property Reference	Flat 5	**Issued on Date**	22/09/2022
Assessment Reference	5	**Prop Type Ref**	
Property			

SAP Rating	89 B	**DER**	14.47	**TER**	16.18
Environmental	90 B	**% DER<TER**	10.57		
CO_2 Emissions (t/year)	0.63	**DFEE**	38.51	**TFEE**	38.90
Compliance Check	See BREL	**% DFEE < TFEE**	0.99		
% DPER < TPER	10.60	**DPER**	77.16	**TPER**	86.31

Assessor Details	Mr. Darren Coham	**Assessor ID**	R789-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	Southwest	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Semi-Detached	
Position of Flat	Mid-floor flat	
Which Floor	2	
2.0 Number of Storeys	1	
3.0 Date Built	2022	
4.0 Sheltered Sides	1	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	250.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	m	m²	m
1st Storey:	30.66 m	49.84 m²	2.55 m
2nd Storey:	m	m²	m
3rd Storey:	m	m²	m
4th Storey:	m	m²	m
5th Storey:	m	m²	m
6th Storey:	m	m²	m
7th Storey:	m	m²	m
8th Storey:	m	m²	m

8.0 Living Area	22.96	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.18		65.82	45.46	0.00	None	20.36	Enter Gross Area
wall to corridor	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.18		12.37	10.42	0.50	Stairwell Stairwell 1	1.95	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Solid Wall	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00		2.61		None

10.1 Party Ceilings

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Party Ceiling 1	Concrete floor slab, carpeted	100.00	49.84

Summary for Input Data

elmhurst energy

11.1 Party Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Party Floor 1	Lowest occupied	Concrete floor slab, carpeted	100.00	49.84

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.80	1.20
Door	Manufacturer	Door to Corridor							1.00

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
w1	windows	External Wall 1	South West	3.57	
w2	windows	External Wall 1	West	2.15	
w3	windows	External Wall 1	North East	3.57	
w4	windows	External Wall 1	North East	3.57	
ed1	Door	wall to corridor	South West	1.95	
pd1	windows	External Wall 1	North West	7.50	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E2 Other lintels (including other steel lintels)	Gov Approved Scheme	10.07	0.04	0.04	Yes
E4 Jamb	Gov Approved Scheme	25.90	0.04	0.04	Yes
E7 Party floor between dwellings (in blocks of flats)	Gov Approved Scheme	61.32	0.03	0.03	No
E16 Corner (normal)	Gov Approved Scheme	5.10	0.04	0.04	Yes
E18 Party wall between dwellings	Gov Approved Scheme	5.10	0.06	0.06	Yes
P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	Gov Approved Scheme	1.03	0.00	0.00	No

Y-value	0.04	W/m²K

18.0 Pressure Testing	Yes	
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP_{50}	3.00	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	No	

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No	

22.0 Lighting

No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	80.00	8	640	10

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17511	
Fuel Type	Mains gas	
In Winter	89.20	
In Summer	87.20	
Model Name	Greenstar	
Manufacturer	Bosch Thermotechnology	
System Type	Combi boiler	
Controls SAP Code	2106	
Delayed Start Stat	Yes	
Flue Type	Balanced	

Summary for Input Data

elmhurst energy

Fan Assisted Flue	Yes
Is MHS Pumped	Pump in heated space
Heating Pump Age	2013 or later
Heat Emitter	Radiators
Flow Temperature	Enter value
Flow Temperature Value	45.00
Boiler Interlock	Yes
Combi boiler type	Standard Combi
Combi keep hot type	Gas/Oil, time clock

25.0 Main Heating 2 None

26.0 Heat Networks None

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1										
Heat source 2										
Heat source 3										
Heat source 4										
Heat source 5										

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	No
Cold Water Source	From mains
Bath Count	1

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder None

In Airing Cupboard	No

32.0 Photovoltaic Unit Multiple Dwellings – Connected

Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	Yes
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.68	South	30°	None Or Little		No	1.00		

34.0 Small-scale Hydro None

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
			0	0
			0	0
			0	0

Building Regulations England Part L (BREL) Compliance Report

Approved Document L1 2021 Edition, England assessed by Elmhurst Sap 10 SAP 10 program, 1.0

Date: Thu 22 Sep 2022 12:11:29

Project Information			
Assessed By	Darren Coham	Building Type	Flat, Detached
OCDEA Registration	EES/022007	Assessment Date	2022-09-22

Dwelling Details			
Assessment Type	As built	Total Floor Area	82 m^2
Site Reference	Flat 6	Plot Reference	6
Address			

Client Details	
Name	-
Company	-
Address	-, -, -, -, -

This report covers items included within the SAP calculations. It is not a complete report of regulations compliance.

1a Target emission rate and dwelling emission rate		
Fuel for main heating system	Mains gas	
Target carbon dioxide emission rate	*15.29 $kgCO_2/m^2$*	
Dwelling carbon dioxide emission rate	14.04 $kgCO_2/m^2$	OK
1b Target primary energy rate and dwelling primary energy		
Target primary energy	*81.09 kWh_{PE}/m^2*	
Dwelling primary energy	75.54 kWh_{PE}/m^2	OK
1c Target fabric energy efficiency and dwelling fabric energy efficiency		
Target fabric energy efficiency	*45.5 kWh/m^2*	
Dwelling fabric energy efficiency	45.3 kWh/m^2	OK

2a Fabric U-values				
Element	***Maximum permitted average U-Value [W/m^2K]***	**Dwelling average U-Value [W/m^2K]**	**Element with highest individual U-Value**	
External walls	*0.26*	0.18	Walls (1) (0.18)	OK
Party walls	*0.2*	N/A	N/A	**N/A**
Curtain walls	*1.6*	N/A	N/A	**N/A**
Floors	*0.18*	N/A	N/A	**N/A**
Roofs	*0.16*	0.11	Roof (1) (0.11)	OK
Windows, doors, and roof windows	*1.6*	1.19	w1 (1.2)	OK
Rooflights	*2.2*	N/A	N/A	**N/A**

2b Envelope elements (better than typically expected values are flagged with a subsequent (!))		
Name	**Net area [m^2]**	**U-Value [W/m^2K]**
Exposed wall: Walls (1)	63.261	0.18
Sheltered wall: Walls (2)	24.3125	0.18
Exposed roof: Roof (1)	81.87	0.11

2c Openings (better than typically expected values are flagged with a subsequent (!))				
Name	**Area [m^2]**	**Orientation**	**Frame factor**	**U-Value [W/m^2K]**
w1, windows	3.57	South East	0.8	1.2
w2, windows	3.57	South East	0.8	1.2
w3, windows	3.57	South West	0.8	1.2
w4, windows	3.57	North East	0.8	1.2
ed1, Door	1.9475	South West	N/A	1 **(!)**
pd1, windows	7.5	North West	0.8	1.2
w5, windows	3.57	North East	0.8	1.2
w6, windows	5.376	North East	0.8	1.2
w7, windows	5.313	North East	0.8	1.2
w8, windows	3.15	North West	0.8	1.2
w9, windows	3.15	South East	0.8	1.2

2d Thermal bridging (better than typically expected values are flagged with a subsequent (!))
Building part **1 - Main Dwelling**: Thermal bridging calculated from linear thermal transmittances for each junction

Main element	Junction detail	Source	Psi value [W/mK]	Drawing / reference
External wall	E2: Other lintels (including other steel lintels)	Government-approved scheme	0.042	
External wall	E4: Jamb	Government-approved scheme	0.035 **(!)**	
External wall	E7: Party floor between dwellings (in blocks of flats)	Government-approved scheme	0.027 **(!)**	
External wall	E14: Flat roof	Government-approved scheme	0.08	
External wall	E16: Corner (normal)	Government-approved scheme	0.042	
External wall	E17: Corner (inverted - internal area greater than external area)	Government-approved scheme	-0.378	

3 Air permeability (better than typically expected values are flagged with a subsequent (!))		
Maximum permitted air permeability at 50Pa	*8 m^3/hm^2*	
Dwelling air permeability at 50Pa	3 m^3/hm^2, Measured value **(!)**	OK
Air permeability test certificate reference		

4 Space heating	
Main heating system 1: Boiler with radiators or underfloor heating - Mains gas	
Efficiency	89.2%
Emitter type	Radiators
Flow temperature	45°C
System type	Combi boiler
Manufacturer	Bosch Thermotechnology
Model	Greenstar
Commissioning	
Secondary heating system: N/A	
Fuel	N/A
Efficiency	N/A
Commissioning	

5 Hot water	
Cylinder/store - type: N/A	
Capacity	N/A
Declared heat loss	N/A
Primary pipework insulated	N/A
Manufacturer	
Model	
Commissioning	
Waste water heat recovery system 1 - type: N/A	
Efficiency	
Manufacturer	
Model	

6 Controls	
Main heating 1 - type: Programmer, room thermostat, and TRVs	
Function	
Ecodesign class	
Manufacturer	
Model	
Water heating - type: N/A	
Manufacturer	
Model	

7 Lighting		
Minimum permitted light source efficacy	*75 lm/W*	
Lowest light source efficacy	80 lm/W	OK
External lights control	N/A	

8 Mechanical ventilation		
System type: N/A		
Maximum permitted specific fan power	*N/A*	
Specific fan power	N/A	**N/A**
Minimum permitted heat recovery efficiency	*N/A*	
Heat recovery efficiency	N/A	**N/A**
Manufacturer/Model		
Commissioning		

9 Local generation	
Technology type: **Photovoltaic system (1)**	
Peak power	0.68 kWp
Orientation	South
Pitch	30°
Overshading	None or very little
Manufacturer	
MCS certificate	

10 Heat networks
N/A

11 Supporting documentary evidence	
Documentary evidence identified in 11.1 and 11.2 is needed to confirm the data values used for any calculations undertaken, manufacturer declarations made, and tests performed as reflected in this "As built" BREL Compliance Report are correct. 11.1 SAP Conventions, Appendix 1 (documentary evidence) schedules the minimum documentary evidence required. 11.2 Indicative photographic evidence of key stages during construction (guidance within Approved Document L, Volume 1 – Appendix B) that confirms the products identified in this BREL Compliance Report are used in this dwelling, and workmanship is of sufficient quality to support the calculated values claimed in 2a to 2d.	

12 Declarations	
a. Assessor Declaration	
This declaration by the assessor is confirmation that the contents of this BREL Compliance Report are a true and accurate reflection based upon the design and construction information submitted for this dwelling for the purpose of carrying out the assessment, and that the supporting documentary evidence (identified in 11.1 and 11.2) pursuant to Part L of the Building Regulations 2010 (as amended) has been reviewed in the course of preparing this BREL Compliance Report.	
Signed: Name:	Assessor ID: Date:
b. Client Declaration	
This declaration by the client is confirmation that the dwelling has been constructed and completed according to the specifications set out in this BREL Compliance Report, and that photographic evidence of key stages, as described in 11.2, has been provided to the Assessor for this dwelling.	
Signed: Name:	Organisation: Date:

Summary for Input Data

elmhurst energy

Property Reference	Flat 6	**Issued on Date**	22/09/2022
Assessment Reference	6	**Prop Type Ref**	
Property			

SAP Rating	88 B	**DER**	14.04	**TER**	15.29
Environmental	88 B	**% DER<TER**	8.18		
CO_2 Emissions (t/year)	1	**DFEE**	45.33	**TFEE**	45.49
Compliance Check	See BREL	**% DFEE < TFEE**	0.37		
% DPER < TPER	6.85	**DPER**	75.54	**TPER**	81.09

Assessor Details	Mr. Darren Coham	**Assessor ID**	R789-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Built)

Orientation	Southwest	
Property Tenture	ND	
Transaction Type	6	
Terrain Type	Suburban	
1.0 Property Type	Flat, Detached	
Position of Flat	Top-floor flat	
Which Floor	4	
2.0 Number of Storeys	1	
3.0 Date Built	2022	
4.0 Sheltered Sides	1	
5.0 Sunlight/Shade	Average or unknown	
6.0 Thermal Mass Parameter	Enter TMP value	
Thermal Mass	250.00	kJ/m²K
7.0 Electricity Tariff	Standard	
Smart electricity meter fitted	Yes	
Smart gas meter fitted	Yes	

7.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	m	m²	m
1st Storey:	54.94 m	81.87 m²	2.40 m
2nd Storey:	m	m²	m
3rd Storey:	m	m²	m
4th Storey:	m	m²	m
5th Storey:	m	m²	m
6th Storey:	m	m²	m
7th Storey:	m	m²	m
8th Storey:	m	m²	m

8.0 Living Area	35.23	m²

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Res	Shelter	Openings	Area Calculation Type
External Wall 1	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.18		105.60	63.26	0.00	None	42.34	Enter Gross Area
wall to corridor	Cavity Wall	Cavity wall; plasterboard on dabs or battens, lightweight aggregate block, filled cavity, any outside structure	0.18		26.26	24.31	0.50	Stairwell Stairwell 1	1.95	Enter Gross Area

9.1 Party Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)	Shelter Res	Shelter
Party Wall 1	Solid Wall	Single plasterboard on dabs both sides, lightweight aggregate blocks, cavity or cavity fill	0.00		2.61		None

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area(m²)	Nett Area (m²)	Shelter Code	Shelter Factor	Calculation Type	Openings

External Roof 1	External Flat Roof	Plasterboard, insulated flat roof	0.11	9.00	81.87	0.00	None	0.00	Enter Gross Area	0.00	

11.1 Party Floors

Description	Storey Index	Construction	Kappa (kJ/m²K)	Area (m²)
Party Floor 1	Lowest occupied	Concrete floor slab, carpeted	100.00	81.87

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m²K)
windows	Manufacturer	Window	Double Low-E Soft 0.05			0.63		0.80	1.20
Door	Manufacturer	Door to Corridor							1.00

13.0 Openings

Name	Opening Type	Location	Orientation	Area (m²)	Pitch
w1	windows	External Wall 1	South East	3.57	
w2	windows	External Wall 1	South East	3.57	
w3	windows	External Wall 1	South West	3.57	
w4	windows	External Wall 1	North East	3.57	
ed1	Door	wall to corridor	South West	1.95	
pd1	windows	External Wall 1	North West	7.50	
w5	windows	External Wall 1	North East	3.57	
w6	windows	External Wall 1	North East	5.38	
w7	windows	External Wall 1	North East	5.31	
w8	windows	External Wall 1	North West	3.15	
w9	windows	External Wall 1	South East	3.15	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	No	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E2 Other lintels (including other steel lintels)	Gov Approved Scheme	20.54	0.04	0.04	Yes
E4 Jamb	Gov Approved Scheme	46.90	0.04	0.04	Yes
E7 Party floor between dwellings (in blocks of flats)	Gov Approved Scheme	54.94	0.03	0.03	Yes
E14 Flat roof	Gov Approved Scheme	54.94	0.08	0.08	Yes
E16 Corner (normal)	Gov Approved Scheme	19.20	0.04	0.04	No
E17 Corner (inverted – internal area greater than external area)	Gov Approved Scheme	9.60	-0.38	-0.38	No

Y-value	0.03	W/m²K

18.0 Pressure Testing	Yes	
Property Tested?	Yes	
Test Method	Blower Door	
As Built AP_{50}	3.00	m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Mechanical Ventilation

Mechanical Ventilation System Present	No	

20.0 Fans, Open Fireplaces, Flues

21.0 Fixed Cooling System	No	

22.0 Lighting

No Fixed Lighting	No	

Name	Efficacy	Power	Capacity	Count
Lighting 1	80.00	8	640	10

24.0 Main Heating 1	Database	
Percentage of Heat	100.00	%
Database Ref. No.	17511	
Fuel Type	Mains gas	
In Winter	89.20	
In Summer	87.20	
Model Name	Greenstar	
Manufacturer	Bosch Thermotechnology	

Summary for Input Data

elmhurst energy

System Type	Combi boiler
Controls SAP Code	2106
Delayed Start Stat	Yes
Flue Type	Balanced
Fan Assisted Flue	Yes
Is MHS Pumped	Pump in heated space
Heating Pump Age	2013 or later
Heat Emitter	Radiators
Flow Temperature	Enter value
Flow Temperature Value	45.00
Boiler Interlock	Yes
Combi boiler type	Standard Combi
Combi keep hot type	Gas/Oil, time clock

25.0 Main Heating 2 — None

26.0 Heat Networks — None

	Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1										
Heat source 2										
Heat source 3										
Heat source 4										
Heat source 5										

28.0 Water Heating

Water Heating	Main Heating 1
SAP Code	901
Flue Gas Heat Recovery System	No
Waste Water Heat Recovery Instantaneous System 1	No
Waste Water Heat Recovery Instantaneous System 2	No
Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	No
Cold Water Source	From mains
Bath Count	1

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder — None

In Airing Cupboard — No

32.0 Photovoltaic Unit — Multiple Dwellings – Connected

Export Capable Meter?	Yes
Connected To Dwelling	Yes
Diverter	Yes
Battery Capacity [kWh]	0.00

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
0.68	South	30°	None Or Little		No	1.00		

34.0 Small-scale Hydro — None

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

Summary for Input Data

	Typical Cost	Typical savings per year	Ratings after improvement	
			SAP rating	Environmental Impact
			0	0
			0	0
			0	0